



MMS

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science

Observations, Discoveries

MMS investigates how the sun and Earth's magnetic fields connect and disconnect, explosively transferring energy from one to the other – a process that occurs throughout the universe, known as magnetic reconnection.

technology

Data Collection, Communication

By observing magnetic reconnection, MMS studies the ultimate driver of space weather, which affects modern technological systems such as:

- Communications Networks
- GPS Navigation
- Electrical Power Grids

engineering

Strategies, Process, Design

The four identically instrumented MMS spacecraft fly in an adjustable pyramid-like formation that enables them to observe the 3-D structure of magnetic reconnection.

mathematics

Modeling Tools, Data Analysis

MMS reveals, for the first time, the small-scale 3-D structure and dynamics of the key reconnection regions where the most energetic events originate.

magnetospheric multiscale

magnetospheric multiscale

magnetospheric multiscale

magnetospheric multiscale



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- Science Activities
- Scientist Interviews
- Videos and Animations
- Science Interactives
- <http://mms.gsfc.nasa.gov>



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- Technology Activities
- Spacecraft Diagrams
- Technology Image Gallery
- Instrument Descriptions
- <http://mms.gsfc.nasa.gov>



Scan and Connect!

- Engineering Activities
- Paper and Lego Spacecraft Models
- Spacecraft Assembly Gallery
- Mission Videos and Animations
- <http://mms.gsfc.nasa.gov>



Scan and Connect!

- Mathematics Activities
- Simulations and Models
- MMS Space Math Problems
- Career Interviews
- <http://mms.gsfc.nasa.gov>

MMS examines the microphysics of three associated and fundamental space processes:

- magnetic reconnection
- energetic particle acceleration
- turbulence

Technology is essential to the science of MMS for such purposes as:

- access to outer space
- data collection and storage
- simulations and models
- communication of information

MMS engineers creatively design, test, redesign, and then implement solutions.

Engineers use knowledge of science and technology, together with strategies of design, to solve practical problems.

Mathematical modeling aids in technological design by simulating how a proposed system might behave.

